

The Benefits of Trees

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Trees – and collectively the urban forest - are major capital assets in cities across the United States. Just as streets, sidewalks, and public buildings are a part of a community's infrastructure, so are publicly owned trees. Boulder's trees are on the job 24 hours every day working for all of us to improve our environment and quality of life. The Parks and Recreation Forestry Division maintains approximately 40,000 trees in city parks and public street rights-of-way. We estimate there are over 400,000 trees on both public and private property within Boulder's urban forest that contribute to our quality of life.

Boulder's urban forest provides many environmental benefits to our community. Aside from the obvious aesthetic benefits, trees within our urban forest improve our air, protect our water, save energy, improve economic sustainability, and provide food and shelter for wildlife. The following information is based on several different studies. For more detailed information about the benefits that Boulder's urban forest provides, refer to the report "Calculating the Value of Boulder's Urban Forest."

- Trees remove carbon dioxide from the atmosphere through photosynthesis and return oxygen back to the atmosphere as a byproduct. About half of the greenhouse effect is caused by carbon dioxide. Trees act as a carbon sink by removing the carbon and storing it in their trunk, branches, leaves and roots. Boulder's urban forest stores approximately 112,000 tons of carbon, and removes an additional 2250 tons per year, removing a significant amount of vehicle and industrial emissions from our air. This carbon storage is valued at over \$1,000,000.

- Approximately 800 million tons of carbon are stored in US urban forests with a \$22 billion equivalent in control costs.

- Trees also remove other air pollutants such as sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide and particulate matter through the photosynthetic process. The filtration provided by Boulder's urban trees is valued at approximately \$730,000 per year.

Urban forests protect our water:

- During a major rainstorm, trees intercept the rain on their leaves, branches and trunks and thereby reduce stormwater runoff by preventing the water from reaching the ground. The tree cover in Boulder reduces stormwater runoff by approximately 12.2 million ft³ (the volume of a 20-story building the size of a football field) per 2-inch storm. For every 5% of tree cover added to a community, stormwater runoff is reduced by approximately 2%.

- Trees reduce topsoil erosion, prevent harmful land pollutants contained in the soil from getting into our waterways, and ensure that our groundwater supplies are continually being replenished.

Urban forests save energy:

- Trees lower local air temperatures by transpiring water and shading surfaces. It is 6-19 degrees cooler under a tree canopy during the summer months. Because they lower air temperatures, shade buildings in the summer, and block winter winds, they can reduce building energy use and cooling costs. Boulder's urban forest reduces energy costs city-wide by approximately \$1,400,000 per year.

Urban forests improve economic sustainability:

- A community's trees and, collectively, its urban forest, is usually the first impression a community projects to its visitors. A community's urban forest is an extension of its pride and community spirit. People linger and shop longer along tree-lined streets, and businesses with offices surrounded by trees find their workers are more productive and absenteeism is reduced.

Urban forests provide food and shelter for wildlife:

- Urban trees provide honeybees, birds, squirrels, raccoons and deer, just to name a few, with shelter and food needed to survive within the City of Boulder.

- Trees in native areas such as stream corridors provide food, shelter, and nesting habitats to many diverse and sometime rare species.

For more information contact the Forestry Division at 303 - 441- 4406 (Monday – Friday, 7 a.m.–3:30 p.m.).

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